Harsh Environment Communication Solutions

Systems deployed in field conditions or in harsh environments should be specially constructed to withstand extreme conditions such as high or low temperatures, corrosive humidity, extreme weather or excessive dust and dirt. Such applications require specially designed fiber-optic and electronic solutions that can perform under extreme conditions and conform to the highest quality standards, keeping security and reliability as a top priority.

Fibernet offers an extensive array of advanced telecommunications and electronic solutions for the defense and homeland security markets for various applications in air, land and water environments. These solutions enable our customers to meet the demand for increasingly intelligent systems while controlling costs, competitiveness and time to market.

Solutions provided by Fibernet include deployable reels, tactical cables, tactical systems, ruggedized enclosures, Rotary joints and custom-designed assemblies as well as active solutions for monitoring, protection, testing and inspection. Our products guarantee excellent performance during military operations while allowing easy field deployment. Taken together, we offer a comprehensive solution that covers the entire life-cycle, from network building to operations, including monitoring and maintenance.

Fibernet's solutions are developed through years of expertise working on numerous high-profile projects with the flexibility of a private company capable of designing, developing and rapidly delivering a wide range of turn-key products. We’re ISO 9001:2008 and AS9100 certified, and our portfolio of solutions meets the strictest international military standards including MIL-STD-810, guaranteeing long lasting products for any type of environment or application and all products undergo rigorous testing using the latest technology.

Fibernet is committed to long-term support and service excellence and its personnel are fully trained to service all systems in which the company’s components are integrated. Maintenance and support services ensure critical systems are online whenever they are needed.

Whatever your need, Fibernet can tailor a customized solution to keep your lines of communications open under any condition.
Optical Network Monitoring & Protection

Fiber Monitoring System (FMS):
Fibernet's Fiber Monitoring System provides constant fiber network trouble shooting and preventive maintenance monitoring to avoid fiber loss and signal strength degradation especially in mission critical applications that require maximum network and service availability.

Our FMS can monitor up to 16 ports in just one 1U chassis and upon optical signal strength degradation or loss, the FMS can activate different alarm types. The FMS is remotely GUI managed through a user-friendly application accessible from any location.

Optical Line Protection:
Survivability of optical connections has grown into an issue of crucial importance for optical communication networks. An interruption of a high-speed optical connection even for a moment may mean a huge loss of data information and may damage critical applications.

Fibernet's Optical Line Protector (OLP) is a high performance fiber protection system that continuously monitors the optical power on both its primary and secondary links. If the optical power on one optical link drops below a defined threshold, the unit triggers switchover of the optical path to the back-up path. A user-friendly GUI interface allows easy threshold definition to meet different protection requirements and alarm triggering before reaching fiber outage critical values. Operation is independent of transmission rate, format, and wavelength.

Rack-mounted Optical Switch system:
Optical switching systems are driven by the need to provide flexibility in optical network connectivity, multi-channel fiber monitoring and optical fiber path rerouting. These systems lower infrastructure costs while enabling testing configurations automation and consistent connectivity scheme for various testing scenarios. Our rack-mounted optical switch system allows manual selection of a specific port (out of N) to be connected to a common port. The product switching configuration and number of ports are modular and can be customized up to 128 ports (4U size).

Control Room Solutions
Fibernet offers technical furniture solutions for 24x7 operations environments. We provide our customers with high-end consoles that enable the operators to optimize and manage all the structured cabling and easily connect the equipment to power and data networks.

The consoles can be customized and can hold many connectivity elements within their backbones or on the work surface itself. Illumination systems, articulations and PC supports complete the product and increase user's comfort.
Fiber Optic Network Solutions

Fibernet offers a wide range of network solutions designed for use in harsh environments and in the geophysical, naval, commercial and military aerospace industries.

Media Converters:

Our media converters support different transmission protocols and are available as standalone or modular. They enable infrastructure matching - copper-to-fiber or fiber-to-fiber, act as a demarcation point between network segments and increase the capacity of existing fiber with WDM wavelengths.

Our Copper-to-Fiber-Optic Video Media Converters provide solutions for both MMF and SMF applications and are tailored to support a variety of Video protocols including DVI, HDMI, SMPTE (SDI, HD-SDI and 3G-SDI), ARINC 818 and more.

We also supply media converters for in-line and select panel mount applications which facilitate conversion of 10/100/1000BASE-SX/LX fiber optic gigabit Ethernet data streams to electrical signals servicing switches, routers, and other peripherals.

Finally, our signal aggregation media converters integrate a set of compact opto-electronic modules to digitize and/or aggregate multiple common signal types, and combine them onto high-data-rate serial optical fiber channels.

Optical Pluggable Transceivers:

Fibernet offers the most comprehensive, high-performance and cost effective selection of Optical Pluggable Transceivers in the market, covering a wide range of applications, data-rate and reach requirements.

Our Pluggable Transceivers are designed to support multiple network protocols and can handle data rates from 100Mbps to 100Gbps, running over multimode or single mode fiber using different wavelengths, including CWDM and DWDM. Most of our transceivers use dual fiber, but there are also single fiber bi-directional communication versions.

Wave Division Multiplexing (WDM):

Wavelength Division Multiplexing technology uses multiple wavelengths to transport signals over a single fiber. This creates virtual fibers and multiply fiber capacity allowing transmission of huge amounts of data transmitted over a single fiber.

Fibernet maintains a wide portfolio of components supporting WDM networking such as WDM Transceivers (SFP, SFP+, XFP), WDM filters (MUX/DEMUX/OADM), Optical Amplifiers and Dispersion Compensation products.

Our rack-mounted DWDM/CDWM MUX and DeMux represents an excellent solution for lowering infrastructure costs and expanding fiber capacity by aggregating up to 88 different wavelengths onto a single fiber. Since these 1U products are protocol transparent and completely passive, they can also be used in non-powered intermediate locations in a DWDM/CDWM network.
Cabling Solutions

Fibernet provides a wide range of cabling solutions for harsh environments, guaranteeing top performance under conditions ranging from extreme heat to frequent deployments and mechanical pressures. Our cabling solutions are designed specifically for tactical deployments and are integrated in DOD and MOD projects domestically and worldwide.

Tactical Cables

Fibernet provides a range of rugged, tight-buffered fiber optic cables characterized by the highest possible survivability in severe circumstances such as crush, impact, vehicle run over, and rapid deployment and retrieval. All our cables can endure the wear-and-tear associated with extreme environmental demands and repeated deployments, providing seamless connectivity for the long haul.

Our cabling solutions include advanced cabling system, such as Distribution Mil-Tac cables and Breakout Mil-Tac cables which are the most rugged and robust fiber optic cables for the military ground tactical market, ideal for deployment and retrieval in harsh environments.

Fibernet further supplies cables designed for specific conditions, such as extra deterrence against rodents or the ability to resist extreme temperatures associated with fire.

Submarine Umbilical Cables:

Submarine umbilical cables are multi-purpose cables deployed under the sea surface to provide power, data and hydraulics. These cables are able to withstand extreme pressures, corrosiveness and deliver communications over great lengths. Fibernet delivers high quality fiber optic cables and components, using a unique packaging technology resulting in a robust, compact product.

Downhole Cables:

Downhole cables are designed to withstand elevated temperatures, high pressure and corrosive environments, featuring a loose tube design and hydrogen scavenging gel. They are able to withstand up to 150°C and up to 20,000 psi operating pressure. All cables are customized for the customer’s specific needs in order to maximize communications at an affordable cost.
Fibernet offers cutting-edge lightweight cable deployment reel systems utilizing special impact modified polymer construction which makes it ideal for applications calling for quick deployment and reel-in of cable as well as quick transportation and efficient storage.

An integrated cable payout and storage area enables the operator to deploy small lengths of fiber cable without having to unspool the entire payload, while integrated connector storage allows multi-channel cylindrical connectors to be stored and locked in place for transit.

Our cable reels offer a variety of deployment options, including optional frames, backpacks, shipping cases, and cable acquisition platforms. This enables customers to meet the demands of diverse applications and uses with one modular reel and accessories platform.

**Specialty Cables:**

When working under extreme temperatures or high pressure, traditional cables are just not up to the task. Fibernet's range of specialty cabling solutions allows its customers to enjoy high capacity communications, whenever and wherever they need it.

Our wide range of solutions includes Sensing fiber optic cables which are suitable for a wide variety of applications monitoring for temperature, strain, acoustics and pressure. With cables performing from -200°C to 700°C and pressures from ambient to 50,000 psi, Fibernet's cabling solutions can serve under the most extreme of environments.

We also provide specially designed cables that can withstand a heat of over 150°C or other extreme conditions, tactical tight buffered cables, High Strength Steel Wire (HSSW) armored fiber optic cables, armored stainless steel and fiber optic tubes, and fiber rods.

**Transmission System Rotary solutions**

**Fiber Optic Rotary Joints:**

Fiber Optic Rotary Joints are a crucial component for interfacing fiber optic and copper infrastructure segments and enable uninterrupted transmission of optical signals while rotating along the common mechanical axis. They are very common in oceanographic winches for seismic exploration streamers, ROVs (ship deck and subsea) radar and display systems, wire line logging and coil tubing reels, filler and food packaging machines. Our Rotary Joints are compact, designed for Single Mode or Multimode channels and can hold multiple fiber and copper channels.

Our miniature series provide a perfect solution for space sensitive and harsh environment applications. They can withstand a wide range of operating temperatures, are dust & water resistant and offer excellent optical performance.
**Tactical Cable Assemblies**

Fibernet provides and distributes reliable, resilient and dependable connectors which can be deployed in multiple environments, ensuring a seamless flow of information to and from the field.

**Connectors for Field Deployments**

Connectors used under field conditions must meet challenging requirements. Such connectors must endure quick deployment, repeated coupling and uncoupling, and work well in the presence of dust, high temperatures and other extreme conditions.

Our solutions include a wide range of **Expanded Beam** connectors such as AVENA, as well as **TFOCA Compliant Physical Contact Connectors** which allow for quick deployment and excellent connectivity. These may feature gender independence, hybrid interconnection between fiber optic and electrical power, extra-small packaging, and more.

Fibernet combines decades of experience with a large product portfolio to deliver reliable and resilient connecting systems for seamless deployment under any conditions.

**Expanded Beam Connectors:**

Expanded beam connectors use a spherical lens to collimate the signal at many times the original diameter. This technology makes the connector very resistant to shock and environmental issues, minimizing the effects of dust, debris and mechanical vibration, resulting a connector life in excess of 3,000 mating cycles.

We offer a range of expanded beam connectors from world leading brands, including AVENA connectors, which offer unprecedented performance in harsh environments thanks to its protection window. They have been successfully integrated in flagship projects of the Israeli Air Force, such as "Arrow 3", "Magic Wand" and "Iron Dome".

**System Integrated Connectors**

The connectors and connecting systems provided by Fibernet include best-of-breed products meeting the world’s most stringent standards and able to withstand great environmental pressures.

**D38999 Compliant Connectors:**

MIL-DTL-38999 is the recognized standard for all aerospace applications, whether military or commercial. We supply compliant connectors for a wide range of applications and needs, meeting rigorous quality and performance standards.

Our range of D38999 compliant connectors includes ARINC801 connectors and Mighty Mouse connectors. The ARINC801 connectors include a removable alignment sleeve retainer with guidepins to ensure low insertion loss and to allow easy cleaning and inspection. Mighty Mouse connectors are a smaller and lighter alternative to D38999 connectors designed for aerospace applications.

**High Density Connectors:**

Our solutions include High Density connectors for applications that require a perfect combination of high-bandwidth fiber optics with an ultra-miniature packaging without compromising on outstanding optical and environmental performance. These connectors accommodate a variety of both singlemode and multimode fiber media and feature extremely low insertion loss.

**Hybrid Connectors:**

We further provide Pin & Socket connectors, which are hermaphroditic and hybrid connectors using field proven design concepts, perfect for dynamic, harsh environments. They are ideal for demanding applications thanks to their rugged, environmentally sealed design and anodized aluminum body.
Testing & Inspection Solutions

We supply test and inspection products designed to provide accurate results every time. They are engineered to endure outside plant environments, and feature intuitive user interfaces. Product lines include optical time domain reflectometers (OTDRs), loss test kits, inspection and cleaning, fiber identifiers, fault locators and more.

Test Kits:

Our Test kits are ideally suited for testing fiber optic networks with hybrid (single-mode and multimode) cables and for fiber identification prior to splicing.

Our advanced kits include complete optical network verification and troubleshooting test tools allowing network technicians to: measure loss and power levels, perform OTDR network characterization, locate faults and polarity issues and solve problems due to dirty or damaged connectors.

OTDR’s:

Fibenet provides robust and sophisticated OTDRs designed for Enterprise Network testing & troubleshooting and satisfying a broad range of measurement needs. They are extremely easy to use, can handle harsh field conditions and provide multitasking functionality coupled with fast start up time and immediate network characterization & reporting.

Video Borescope (Video scope):

Our portable and versatile Video Borescope is designed to make inspections quick and easy in hard-to-reach and deep places. It allows you to capture your information and to generate either high quality images or video that can easily be transferred to a computer through a USB interface. Thanks to its 4 Way articulation 360 degrees joystick and different length cables (including waterproof cables), our Video Borescopes can meet the requirements of all industries including aviation, automotive, heavy machinery and military.

FOCIS - Fiber Optic Connector Inspection Systems:

Our range of fiber inspection solutions (PRO, FLEX, DFS1 and Wifi) enable network personnel to document fiber connector cleanliness. We maintain an extensive assortment of adapter tips to allow usage with all types of fiber connector ferrules and bulkhead connectors.

The FOCIS Pro solutions include a palm-sized DFD1 Touchscreen Tablet, a DFS1 Digital Fiberscope and an inspection software to provide high inspection and analysis power while keeping the ergonomics, ease of use, ruggedness and low ownership costs of basic “live only” viewers.

By pressing a single button, our FOCIS Flex solution auto-focuses, captures and centers the end-face image, applies the relevant pass/fail rules, displays and wirelessly transfers the image and results to a paired FlexTester.

The DFS1 Digital FiberScope is a high-resolution video inspection probe allowing magnified video inspection of optical fiber connector end-faces during fiber optic cable and connector installation and maintenance. The ergonomically designed hand-held unit illuminates fiber end-faces and delivers magnified images via USB.

Last but not least, the FOCIS WiFi combines the fiber connector inspection & analysis capabilities of our FOCIS systems with the familiar, powerful and easy-to-use capabilities of a smartphone or tablet.

Our Partners:
DEVELOPMENT

Fibernet’s team is at the forefront of fiber optics and electronics technologies with a series of in-house products in addition to working with market leaders to design and develop sophisticated devices from conception to mass-production.

PRODUCTS

Fibernet provides high-quality fiber optics and electronic solutions to diverse industries, enabling them to keep pace with technological innovations, offer faster networks, meet customer expectations and increase profitability.

MANUFACTURING

Fibernet leverages its two decades of fiber-optics and electronics expertise as well as state of the art facilities and equipment to manufacture top quality turn-key solutions in compliance with the strictest international standards.